

**Updated Budget**

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Mini-Solar Power Station

SD1203

8/29/2012

Group: Brian Amann  
Stephanie Erickson  
Qingyu (Jace) Meng  
Kaixun (Jerry) Wang

Advisors: Dr. Yuvarajan  
Jeff Erickson

## Updated Budget

|                                    |                 |           |                          |           |            |  |               |
|------------------------------------|-----------------|-----------|--------------------------|-----------|------------|--|---------------|
|                                    | Project Name:   |           | Mini-Solar Power Station |           |            |  |               |
|                                    | Project Number: |           | SD1203                   |           |            |  |               |
| Sun Simulator                      |                 |           |                          |           |            |  |               |
| Mechanical Hardware                |                 | Cost/Unit | #                        | Purchased | Total Cost | Supplier   | Notes         |
| 3/4" x 10' EMT (or equivalent)     |                 | \$6.17    | 2                        |           | \$12.34    | Home Depot or Grainger                             |               |
| Wood (2x10-10',2x4-8',4x8 plywood) |                 | \$35.97   | 1                        |           | \$35.97    | Home Depot or Grainger                             |               |
| 4 in Heavy Duty Tee Hinge          |                 | \$3.87    | 2                        | X         | \$7.74     | Grainger Industrial Supply                         | Part#: 1RCT3  |
| R40 5" Dia., 250W, 120V Lamp       |                 | \$21.84   | 1                        | X         | \$21.84    | Grainger Industrial Supply                         | Part#: 1E295  |
| Heat Lamp Dome                     |                 | \$18.00   | 1                        | X         | \$0.00     | Free from NDSU                                     |               |
| Linear Actuator                    |                 | \$220.00  | 1                        |           | \$220.00   | Search EBay for better price                       | Unipolar      |
| Stepper Motor                      |                 | \$220.00  | 1                        |           | \$220.00   | Search EBay for better price                       | Unipolar      |
| Ball Bearing Sheave                |                 | \$11.91   | 2                        | X         | \$23.82    | Grainger Industrial Supply                         | Part#: 5RTD5  |
| Flat Mount Block Pulley, 2"        |                 | \$7.73    | 2                        | X         | \$15.46    | Grainger Industrial Supply                         | Part#: 4JX69  |
| 1/16, 50ft, 7x19 steel cable       |                 | \$39.80   | 1                        | X         | \$39.80    | Grainger Industrial Supply                         | Part#: 2TAY9  |
| Solid State Relay                  |                 | \$30.00   | 1                        | X         | \$0.00     | Free from NDSU                                     |               |
|                                    |                 |           |                          |           |            |  |               |
| Satellite Tracking System          |                 |           |                          |           |            |  |               |
| Mechanical Hardware                |                 |           |                          |           |            |  |               |
| Satellite Dish                     |                 | \$50.00   | 1                        | X         | \$0.00     | Provided by Brian                                  |               |
| Wood and Metal for base structure  |                 | \$40.00   | 1                        |           | \$40.00    | Home Depot or Grainger                             |               |
| Mylar                              |                 | \$11.99   | 1                        | X         | 11.99      | <a href="http://www.amazon.com">www.amazon.com</a> | Part#: VMY130 |
| Stepper Motor                      |                 | \$220.00  | 1                        |           | \$220.00   | Search EBay for better price                       | Unipolar      |
| Linear Actuator                    |                 | \$220.00  | 1                        |           | \$220.00   | Search EBay for better price                       | Unipolar      |
| 5' Copper Pipe 0.5"-3/4"           |                 | \$23      | 1                        |           | \$23.00    | Grainger Industrial Supply                         |               |
| Water Pump                         |                 | \$40.00   | 1                        |           | \$40.00    | Grainger Industrial Supply                         | Item # 2HNN2  |
| Hose Clamp (10 pack)               |                 | \$6.96    | 1                        |           | \$6.96     | Grainger Industrial Supply                         | Part # 5X441  |
| Tubing Installation                |                 | \$8       | 1                        |           | \$8.00     | Grainger Industrial Supply                         |               |
| 3' Plastic Tubing 0.5"-3/4"        |                 | \$1.29    | 1                        |           | \$1.29     | Home Depot or Grainger                             |               |
| 12V rechargeable battery           |                 | \$30.00   | 3                        |           | \$90.00    | Search EBay for better price                       |               |
| NI USB 6008 DAQ                    |                 | \$169.00  | 1                        | X         | \$0.00     | Free from NDSU                                     |               |
| Plastic Circuit Enclosures         |                 | \$5.00    | 4                        |           | \$20.00    | Radio Shack  |               |
|                                    |                 |           |                          |           |            |  |               |
| Electrical Components              |                 |           |                          |           |            |  |               |
| ZTX1053a (nnp transistor)          |                 | \$0.98    | 20                       | X         | \$0.00     | Free from NDSU                                     |               |
| MCP602 (OPAMP)                     |                 | \$0.62    | 16                       | X         | \$0.00     | Free from NDSU                                     |               |
| PIC18F4620 (Microcontroller)       |                 | \$7.92    | 5                        | X         | \$0.00     | Free from NDSU                                     |               |
| ECS-200-20-46X (20 MHz Crystal)    |                 | \$0.46    | 5                        | X         | \$0.00     | Free from NDSU                                     |               |
| Photocell 80k-240kΩ                |                 | \$1.86    | 15                       | X         | \$0.00     | Free from NDSU                                     |               |
| LM7805 (5V voltage regulator)      |                 | \$0.61    | 5                        | X         | \$0.00     | Free from NDSU                                     |               |
| LM7812ACT (12V voltage regulator)  |                 | \$0.69    | 2                        | X         | \$0.00     | Free from NDSU                                     |               |
| Estimated Actual Cost of Project   |                 |           |                          |           | \$1,278.21 |  |               |

**Note:** "Cost/Unit" is the "true value" of the item.

**Note:** "Total Cost" is the "acquired cost" of the item. For items with a "Total Cost" of \$0.00 please refer to the "Supplier" column for supplier.

**Note:** # indicates the quantity of the item for each item in row or column.

**Note:** An X in the "Purchased" column indicates the item was ordered and received.

## Updated Budget

Approval and Sign off:

Dr. Yuvarajan: \_\_\_\_\_ Date: \_\_\_\_\_

Jeff Erickson: \_\_\_\_\_ Date: \_\_\_\_\_

Brian Amann: \_\_\_\_\_ Date: \_\_\_\_\_

Stephanie Erickson: \_\_\_\_\_ Date: \_\_\_\_\_

Qingyu Meng: \_\_\_\_\_ Date: \_\_\_\_\_

Kaixun Wang: \_\_\_\_\_ Date: \_\_\_\_\_